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George Semple of Dublin

By Hardy Cross, Member

A YEAR or more ago, an old volume without title-page was found in the Engineering Library of the University of Illinois. By good fortune, I was able to identify it as "A Treatise on Building in Water", by George Semple, of Dublin, 1776.

It is addressed principally to "young and unexperienced readers", but contains many quaint and shrewd observations on problems that are always foremost with civil engineers. Foundations, waterway requirements, timber preservation, proportions of mortar, width of streets—Semple's difficulties are still acute problems.

He gives an interesting account of his studies in the design of foundations preparatory to replacing the Essex Bridge in Dublin. Previous experience availed little, and so he turned to his books, "but as touching the laying a foundation in deep and rapid rivers, all of the authors were in a manner silent."

In reference to coffer-dams, he says: "They told me, indeed, to make an inclosure; and so might they tell a man, that to measure time he must make a clock; but what would that avail to a man that had never made nor seen any kind of machine for that purpose?"

He then visited London and consulted the engineers "who were then carrying on the pier at the Ramsgate. These two gentlemen were very courteous and communicative; and the former concluded with these words, 'take care that you do not find yourself mistaken'; and the lat-

ter, with this friendly and parting caution, 'above all things take care that you do not spare timber'."

He discourses at length on the "French method of laying foundations in Batterdeaux, of late translated coffer-dam, which I presume, is a word or technical term not used, or even so much as known in the English tongue before the year 1734; about which time it was introduced in some propositions concerning Westminster Bridge".

He expressed the hope "that the scope and designs of this work may be regarded, the real importance of my remarks and contrivance consid-

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He Didn't Get It

NOT long ago a man telephoned headquarters saying his brother, a member of the Society, was on his way to a convention in Atlantic City and was anxious to have a new badge to wear there, having lost his own just a short time previously. The brother, he said, had asked him to call for it and mail it to him at Atlantic City.

All badges are engraved with the name of the member and with his serial number. So reply was made that the badge could be delivered direct to the member in a day or so. In the meantime, however, the member was communicated with and he replied promptly saying that he had not lost his badge, but was in fact wearing it at the moment.

Members value their badges. So, it seems, do others—non members.

Buffalo Meeting in Review

"THEY don't know what they've missed," is the way those that were at the Buffalo Convention spoke of those who were not.

It was one of the ladies that said it first for again, as has so frequently been the case, the ladies especially were provided with a wonderful time—auto trips with tea or luncheons at beautiful country clubs and last but, naturally, not least the day at Niagara Falls. In every feature of the Convention, the hosts certainly outdid themselves.

In the annual conference of Local Section representatives, at which about 50 people were present from 24 Local Sections, at least one spirited debate enlivened the sessions and upon more than one subject there was presented specific data of real value.

The same, perhaps including the spirited debate, is true of the technical sessions. These were said to be equal to the best of recent meetings. Including as they did a number of important discussions relating to regulation of levels, flow and navigation on the Great Lakes and the Niagara River, they afforded an unusual treat. That this was fully appreciated was clear from the comments on all sides and even from the glowing reports in the press.

A large working model of Niagara River and Falls fascinated those who saw it during their visit to the Falls on Friday. Here before their eyes was a most unusual demonstration of the theories developed in the meeting the previous day.

But after all, the remarks most frequently heard were of pleasure derived in new-made friends. The Buffalo Convention is past and gone but it will not soon be forgotten.



Nearly eleven hundred members and guests met in Washington for the Spring Meeting, April 25-27, 1928. This shows part of the gathering assembled with President Coolidge on the White House Grounds, April 25.

An Unusual Timber

THE Society is indebted to Henry Goldmark, Member, for the gift of a piece of one of the Panama Lock sills. The relic consists of a section of about $1\frac{1}{2}$ in. in thickness sawed from a 10 by 10-in. stick. To it has been attached this description:

This piece of honeycombed wood has been cut from one of the sills of mitering lock-gates of the Panama Canal. Its history is interesting. The wood itself is called "greenheart" (*Ocotea Rodoli*). It is of tropical origin, the best variety being found only in British Guiana, South America. As will be noted, it is extremely dense and hard. In fact, it will not float because of its excessive weight (72 lb. per cu. ft.).

When the matter of selecting a suitable material for the lock-sill timbers was brought up, the question of the ravages of the teredo was considered. It was known that this aquatic wood borer was especially harmful in those tropical waters. Greenheart timber, however, had always stood up well in other locations against its attacks. There were records in Germany and England of 40 years or more of successful use without replacement. Hence, although the cost was considerably greater, it was decided to use the material for the lock-gate sills at Panama.

The average life of the sills was somewhat less than nine years. The destruction was due entirely to the teredo as there was no evidence whatever of decay. It appears from these figures that greenheart at Panama has a much shorter life than in Northern harbors. This is undoubtedly due to the much higher

temperature of the water—about 84° —as compared with lower temperatures in the harbors of Europe and the greater part of the United States.

While the life of the greenheart timbers at Panama has not been as long as was hoped for, it has been shown that oak and pine under the same conditions would have lasted only 2 to 4 years, so that the use of the greenheart seems fully justified. This is the case notwithstanding its greater first cost, since the replacing of sills is difficult and expensive and would interfere seriously with navigation. The sample is of especial interest to all engineers because of these unique facts, and because of their pride in any of the accomplishments of the Panama Canal. The information on this specimen is due to Mr. Goldmark, who was in charge of the design of this particular work at Panama between the years 1906 and 1914.



This example of the work of the teredo shows why the Panama Lock Sills last only nine years.

Fall Meeting

SOMETHING could be said at this time of the technical features of the Fall Meeting to be held in San Diego in October next, but except for one item, let present comment be confined to other attractions. Southern California is said to have a delightful climate.

The technical item referred to is of both technical and civic interest. A report on The National Irrigation Policy has been prepared by a Committee of the Irrigation Division and will be discussed at the all-day session of that Division. Other technical details are well in hand, as preparation for these meetings begins, in some respects, nine months or a year in advance.

The dates, October 3, 4, and 5, may be noted as being much earlier in the month than is usual in order that advantage may be had of the Summer Tourist Excursion Rates from the east and of the attractions of the National Parks, which soon thereafter, in some cases, will be closed.

The lure of the many scenic beauties en route (and the California climate) should be the conclusive factors that will cause many Easterners to visit San Diego at the time of the Fall Meeting.

Not many members live in San Diego (37 only) but the policy of taking the Society to the membership applied to them as truly as to the large cities. There were even fewer members resident in Asheville, N. C., when the meeting was held there in 1927, but the attendance ran into several hundred, and a similarly good attendance is expected this fall in San Diego.

Ralph H. Mann

THE growth of Technical Division activities has been so great the past few years and now forms such an important part of the Society's work, that a special assistant has been engaged to devote himself primarily to them.

Mr. Ralph H. Mann will act much as a Secretary to the nine Divisions. In several of the Divisions members are acting as Secretaries to the Executive Committees. Mr. Mann will not take their places, but will be at their service.

Mr. Mann was born in Findlay, Ohio, but removed to New Orleans, La., in 1910. He was educated at Tulane University, from which he was graduated, in 1920 with the degree of B.E. in C.E.

He served in the Washington Artillery of New Orleans on the Mexican Border and in France in the grades from private to Captain (F.A.), and in Germany, with the 345th Field Artillery (1916-1919).

Since graduation, Mr. Mann has been employed by Jahncke Dry Dock Company; as Office Assistant to the City Engineer; and since 1923 with the J. F. Coleman Engineering Company—all of New Orleans. He began work with the Society on April 20th last.

Members Dropped

FIRST-CLASS mail returned persistently by the Post Office, stamped "unclaimed", permits the Headquarters Staff no alternative but to group the intended recipient with others whose addresses are unknown.

The 1928 Year Book contains the names of thirteen members of different grades, whose mail has been so returned. Four of the thirteen have reached that stage where they are permanently excused from dues. One other has compounded his dues. The others are in arrears, and unless those who are in arrears for two years are heard from they will be dropped from membership when the Executive Committee meets to consider the financial outlook for the coming year.

To drop members is an unpleasant duty, but in any group as large as 13,000 there cannot fail to be many cases where, for reasons other than

lack of address, that is the logical course to pursue. In 1927 there were 197 dropped, that is, 1.5% of the membership. Comparison with other Societies in this respect is gratifying. A loss of 4 to 5% per annum from this cause is usual.

Miscellany

A special printing of the Arch Dam Report is available for purchase. It is handsomely bound in blue buckram on book paper, suited for office or library. Price \$5.00 post paid; address the Society at Headquarters.

The Engineer's Memorial dedication at Louvain, on July 4, attracted a number of American members, and a host of European engineers. Among those members reported as attending were: Edward Dean Adams and Alfred D. Flinn, Chairman and Secretary, respectively, of the Engineer's Committee on the War Memorial, Luigi Luigi, George S. Davison, W. J. Barney, W. K. Hatt and L. R. Lohr.

A series of pictures covering New York City appears (one each day) in the *New York Sun*. The Engineering Societies Building was the subject for the evening of May 11. The description which accompanied it was unusually accurate.

Take a look at the new letterhead adopted by the Technical Divisions. Dignified and useful, and at the same time attractive, every one agrees. It has been slightly reduced here; in its original size the shield has the same dimensions as the Society badge.



As usual, engineers were recognized and complimented by Honorary Degrees at this year's Commencements. Those that came to attention included: George H. Pegram, L.L.D., Washington University, St. Louis, Mo.; John F. Stevens, Eng. D., University of North Carolina and University of Michigan; H. S. Boardman, Eng. D., Rhode Island State College. Doubtless there were others.

Upon the death of Charles Macdonald on July 8, last, seniority among Past-Presidents of the Society passed to Onward Bates. Mr. Macdonald was President in 1908 and Mr. Bates in 1909.

The certificate plan was not attempted in connection with the Buffalo meeting because it was not desired to suggest an incentive which might not become operative. Excursion rates granted to Niagara Falls and the use of automobiles made improbable the deposit of the requisite number of certificates.

August Proceedings

AFTER a two months lull—the annual summer omissions during June and July—the August Proceedings appears, presenting seven important papers. Most of them are relatively short, but what they lack in size they add in number and diversity.

For his Annual Address, President Lincoln Bush chooses the topic "Builders, Defenders and Political Despoilers of Our Country". He reviews National expansion, especially the part played by the engineer, leading up to his feats during the World War; his disillusionment in some of the post-war indictments; and finally his vindication.

"The Isthmian Canal Situation" is a vast and live topic. Hence Hans Kramer, Associate Member, wisely limits himself to problems incident to present and future capacity. The Panama Canal, Lieut. Kramer thinks, will handle all probable traffic until 1970. Even for increased capacity it is advisable to add to the number of parallel locks rather than to consider the Nicaragua route.

Although centrifugal pumps have earned a growing popularity for use with oil, the conditions are not the same as for pumping water, because of the added viscosity or internal resistance. In his paper "Characteristics of the Centrifugal Oil Pump", Michael D. Aisenstein, Hydraulic Engineer of the Byron Jackson Pump Company, develops the relationship between ordinary water service and the expected performance with oil.

Speaking of "Street Designing for Various Uses", George W. Tillson, Member, considers the requirements from the various points of traffic, light and air, public utilities, and beautification. In so doing he applies these considerations to general street systems, widths, and ornamentalations, leading finally to the question of the most modern development of all, the super-highway.

Doubtless "The Relation Between Earthquakes and Engineering Structures" is a most complicated one. In his treatment of it, however, Henry D. Dewell, Member, confines himself more to a descriptive, easily understood exposition. In so doing, he explains the apparent phases of the disturbances and the details of the resulting effects, finally applying the

principles to various types of engineering construction.

Questions of city mapping are treated in two papers. Under the title "Base Maps for Regional Planning", Harland Bartholomew, Member, defines the scope and purpose of these maps, the size and scale, and the present trends of this increasingly important work. For his subject, Robert H. Randall, Member, takes "Standard Engineering Service". He, too, enumerates the general procedure of the various surveys from triangulation through the various details to the actual formation of a map. Both these valuable papers were presented at the Joint Meeting of the Surveying and Mapping and of the City Planning Divisions at the last Annual Meeting.

A valuable report from the Structural Division by its Special Committee on the Florida Hurricane is also given. It reviews the behavior of the storm, especially as to its twisting effect on two steel buildings. In particular, it shows the vulnerability of a building having exposures or resistance to wind of varying amount on different sides. The Committee makes some recommendations regarding design for the unusual conditions to be met.

Many of the discussions in the August Proceedings are of unusual value. They embrace a wide variety of subjects, giving the opinions of 63 engineers on 21 current topics. The memoirs of deceased members, which appear at the end of Proceedings number 11.

Another Local Section Publication

AMONG the many purposes of a Local Section—the Constitution, no less, is authority for this—are "closer personal acquaintance and a spirit of co-operation" among members. Just how this is to be attained is not revealed—it must vary with local circumstances. The North Carolina Section, for example, has adopted the plan of a quarterly Bulletin.

Judging by the first issue in June, it is not very pretentious, just a few mimeographed sheets, but it seems to be effective none the less. Naturally Section news has a large place—reports, meetings, committees, and activities of the Director of the Dis-

trict. Then there is the matter of co-operation with other local agencies, in this instance, the North Carolina Society of Engineers; and to a less extent with interests farther afield, such as the Society for the Promotion of Engineering Education. Various activities throughout the State find a place in the Bulletin. Then there are the matters of Registration and Employment, having a certain appeal.

Quite evidently the field, as the officers of the Section conceive it, is by no means a narrow one. If they have their way, every member will catch something of the vision of acquaintance and co-operation.

George Semple

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ered, and not my language or expressions to be anatomised; for I study neither style nor diction.

"There are an infinite number of matters and things to be thoroughly examined and digested, before one can sit down to draw a proper design of this nature; for a plan or design curious or elegant enough upon paper, may prove the instrument of involving both the projector, his employers and the public in very disagreeable circumstances.

"For my part, I think a young man will gain greater reputation by being an humble copier of an ingenious artist, than to pretend to excel every one by the fertility of his own imagination. Where you are under a necessity of striking out something from your own brain, these are not to be abortive, misshapen beings, the mere creatures of a wild fancy, but the fair, the legitimate offspring of a well-regulated judgment."

This engineer had great faith in good lime mortar, which he says should be laid fairly dry with "sharp, clean sand".

"... but make the men temper it with the utmost expedition, and what you want in water to make it fit for your work, give it in elbow-grease; and this rule ought to be observed in making all sorts of mortar". The exact water-lime ratio, however, is not specified nor is the relation of this quantity to the compressive strength given. But he quotes with approval,

"When a hundred years are past and gane,

Then gude mortar is grown to a stane."

which antedates some modern slogans considerably, and has the culture value of the rhyme besides.

During the construction of the abutments, a heavy spring was encountered. Semple tasted, noted the sulfurous odor, tasted again, and decided that he had uncovered a flow of mineral water. So he called in Doctor Rutty, an expert.

"The next morning Doctor Rutty assured us that it was no species of spa water, but he believed, a large body of subterraneous water, that partook of the foul waters of the bed of the river and the sewers".

And so he lived and learned, did George Semple of Dublin, about foundations and bridges and mineral waters, and tells about it all in a mighty interesting way.

Flood Service Given

ENGINEERS near the Mississippi, especially in the Lower Valley, took extraordinary interest in the floods of 1927. Indeed those of the Louisiana Section felt called upon to act in unison in a semi-professional, partly popular manner.

Perhaps they, better than any others, realized the gravity of the situation and the resourcefulness of those in charge. At least, they were certain that much of the information given in the daily press was erroneous, especially, for example, when it showed the City of New Orleans within the inundated area.

Not content with their own confidence, they set about to inspire others with the same feelings. They appointed a Committee, and this Committee drafted resolutions expressing full confidence in the work done by the engineers. Further, it prepared a map giving unbiased and authentic information regarding the flood areas. Through the Chamber of Commerce and other effective local channels, it spread this information broadcast.

Undoubtedly these means were effective in a large degree in allaying ungrounded fears. The public is often in dire need of some disinterested yet intelligent source of accurate information. What a Local Section of the Society can offer in this extremity is amply illustrated by the success of the Louisiana Section.